CLAIMS

We Claim:

1. An apparatus for directing light beams onto a target comprising:

a beam splitter for splitting a main beam into a first split beam and a second split beam;

a first beam path for the first split beam, the first beam path including a first aperture, a first lens and a second lens;

a second beam path for the second split beam, the second beam path including a second aperture, a third lens and a fourth lens; and

a plurality of mirrors arranged such that the first split beam and the second split beam intersect at the target.

2. The apparatus of claim 1 further comprising computer means for controlling the means for rotating the target.

3. The apparatus of claim 2 further comprising means for rotating the target while the first split beam and the second split beam are intersecting at the target.

4. The apparatus of claim 1 further comprising means for creating a very uniform exposure over an entire interference field by beam scanning.

5. The apparatus of claim 1 further comprising placing the target in the image plane of the first aperture and the second aperture.

7. The apparatus of claim 1 wherein the first aperture partially blocks the first split beam from reaching the target and the second aperture partially blocks the second split beam from reaching the target.

8. The apparatus of claim 7 wherein the first aperture and the second aperture are adjusted such that the target is in the image plane of the first split beam and the second split beam.

9. An apparatus for direct light beams onto a target comprising:

means for generating a beam of light;

means for splitting the beam of light into a first split beam of light and a second split beam of light;

means for expanding the first split beam of light;

means for expanding the second split beam of light;

means for directing the first split beam of light and the second split beam of light at a target such that the first split beam of light and the second split beam of light intersect at a first angle; and

means for placing a target in the image plane of a first aperture and a second aperture.

10. The apparatus of claim 9 further comprising:

means for partially blocking the first split beam from reaching the target; and

means for partially blocking the second split beam from reaching the target.

11. The apparatus of claim 10 further comprising means for redirecting the first split beam of light and the second split beam of light the target such that

the first split beam of light and the second split beam of light intersect at a second angle.

12. The apparatus of claim 9 further comprising means for creating a very uniform exposure over an entire interference field by beam scanning.

13. The apparatus of claim 9 wherein the first split beam is directed through a first telescope and the second split beam is directed through a second telescope.

14. The apparatus of claim 13 wherein the first split beam has a first divergence and the second split beam has a second divergence; wherein the first divergence is different than the second divergence.

15. A method of directing light beams onto a target comprising the steps of:

generating a beam of light;

splitting the beam of light into a first split beam of light and a second split beam of light;

directing the first split beam through a first aperture;

expanding the first split beam of light in a first telescope;

directing the second split beam through a second aperture;

expanding the second split beam of light in a second telescope; and

directing the first split beam of light and the second split beam of light at a target such that the first split beam of light and the second split beam of light intersect at a first angle.

16. The method of claim 15 further comprising the steps of:

adjusting the positioning of the target; and

redirecting the first split beam of light and the second split beam of light the target such that the first split beam of light and the second split beam of light intersect at a second angle.

17. The apparatus of claim 15 further comprising placing the target in the image plane of the first aperture and the second aperture.

18. The apparatus of claim 15 further comprising creating a very uniform exposure over an entire interference field by beam scanning.